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HP KAYAK

HP Kayak XU800

Technical Notes

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HP Kayak XU800 PC Workstation Technical Information

This section provides technical information about your PC Workstation.

Features

Feature:	Description:
System Board	Extended-ATX with a dimension of 12.8-inch x 11.4-inch.
Microprocessor	All models have support for up to two Intel Pentium® III processor with either a i256 KB. For Processor 1, a VRM (Voltage Regulator Module) is integrated on the system board, while there is a VRM socket for a second processor, if one is installed.
Cache Memory (integrated in processor package)	• Level-One: 16 KB code, 16 KB data. • Level-Two: i256 KB.
Internal CPU Clock Rate External Processor Bus	533 MHz, 600 MHz, 667 MHz, 733 MHz, 800 MHz and higher. 133 MHz Front Side Bus.
Chipset	Intel® Chipset (I840) including, Input/Output Controller Hub (ICH), PCI 64-bit Hub (P64H), FirmWare Hub (FWH) and Memory Repeater Hub (MRH-S) for SDRAM support.
Super I/O Chip	NS 87364.
BIOS (Basic Input/Output System)	Based on the core of AMIBIOS, including: • 4 M/bits of flash memory. • Support for PCI 2.2 Specification. • Support for RDRAM or SDRAM memory modules.
Firmware - BIOS	Flash EEprom: Intel's Firmware hub concept.
HP MaxiLife Utility (available on all models)	Hardware monitoring utility that monitors system components via the I^2C bus and a LCD status panel.

Feature:	Description:
Operating System	All models are preloaded with Windows NT®4.0 SP5.
Main Memory Maximum amount of memory that can be installed is: 2 GB (4 x 512 MB).	Models include either: • Four RIMM sockets supporting RDRAM ECC memory modules installed in pairs. Any unused RIMM sockets must contain a continuity module. Models are supplied with either 128 MB or 256 MB RDRAM ECC main memory installed in pairs. Memory upgrades are available in pairs of: 128 MB, 256 MB or 512 MB RDRAM ECC modules. • Four DIMM sockets supporting SDRAM 100 MHz ECC memory modules installed in pairs. Models are supplied with 128 MB of SDRAM unbuffered ECC main memory. Memory upgrades are available in 32 MB, 64 MB, 128 MB, 256 MB or 512 MB unbuffered 100 MHz ECC SDRAM modules.
Mass Storage	Seven shelves supporting: • Two front-access, third-height 3½-inch (one for the floppy disk drive and one free) (height 1″); • Three front-access, half height, 5¼-inch drives (height 1.0″); Possibility to install a 3½-inch hard disk drive in one of the 5¼-inch shelves. • Two internal 3½-inch hard disk drives (height 1.0″).
SCSI Controller	SCSI Ultra 160m controller: Adaptec® AIC-7892 Ultra-Wide 16-bit integrated SCSI controller (160 MB/s). The internal SCSI connectors allows for up to five internal devices to be connected. Additional devices can be added outside the PC Workstation by connecting directly to the rear panel SCSI connector. The external connector allows up to ten external devices to be connected. This gives a maximum of 15 (internal + external) devices that can be connected.
IDE Controller	All models include an integrated Ultra ATA-66 controller that supports up to four IDE devices.

Feature:	Description:
Video Controllers	Models include either: • ELSA GLoria Synergy® II AGP video controller with 32 MB of installed SGRAM video memory (maximum configuration). • Matrox® Millennium G250 AGP video controller with 8 MB SGRAM video memory which can be upgraded to 16 MB. • Matrox Millennium G400-Dual monitor AGP video controller with 16 MB SGRAM video memory (maximum configuration). • 3Dlabs Oxygen® GVX1, 32 MB SGRAM video memory (maximum configuration).
Accessory Card Slots	All models haves: • One Universal AGP PRO 4X 50 W 32-bit slot. The AGP bus provides a high performance graphics interface. • Three 32-bit 33 MHz PCI slots[1] 1, 2 and 5 (5 V). ❒ PCI slot 5 is Alert-On LAN (AOL) ready. • Two 64-bit 66 MHz PCI slots 3 and 4 (3.3 V). A majority of the configurations are delivered with PCI slots 1 to 4 vacant.
LAN Card	All models are supplied with an HP 10/100BT PCI Ethernet Adapter LAN card installed in PCI slot 5, supporting Wake-On LAN (WOL) and PCI 2.2 Specification.
CD-ROM Drive	Models include either an IDE 48X CD-ROM, CD-RW drive or DVD drive.
Audio	Integrated on the system board CSA4280 audio PCI chip and AC97 Codec (CS4297) audio.
HP UltraFlow Cooling System	Cooling system with multiple temperature-regulated fans to optimize cooling. Alert reporting to MaxiLife and TopTools.

1. All five PCI slots comply with the PCI Specification 2.2.

Feature:	Description:
System Board Connectors	• One flexible disk drive connector • Two ATA-66 IDE connectors (for up to four IDE devices) • One 16-bit U-160SCSI connector and one SCSI terminator. The SCSI cable is routed from the SCSI connector on the system board (located near the system switches) to the SCSI devices inside the chassis, onto an onboard SCSI terminator (behind the processor), and finally onto the external SCSI connector on the rear panel. The onboard SCSI terminator is automatically deactivated when an external device is attached. • One CD-IN audio connector • AUX connector • Internal speaker connector • One WOL connector • One status panel connector • Two power supply connectors that must be connected • Two fan connectors (one for the PCI fan, and one for the rear fan) • One battery socket The system board layout with all connectors can be found on page 11.
Rear Panel Connectors (color coded)	• 9-pin serial (two, buffered) ❒ Standard: Two UART 16550 buffered serial ports (both RS-232-C). ❒ Serial Ports A and B: 2F8h (IRQ 3), 2E8h (IRQ 3), 3F8h (IRQ 4), 3E8h (IRQ 4), or Off— (if one port uses 2xxh, the other port must use 3xxh). • Dual USB connectors • External 16-bit U160m SCSI connector • Audio ❒ Joystick/Dual MIDI connector ❒ LINE IN jack (3.5 mm) ❒ LINE OUT jack (3.5 mm) ❒ MIC IN jack (3.5 mm) • Keyboard/Mouse ❒ HP enhanced keyboard with mini-DIN connector ❒ HP enhanced scrolling mouse with mini-DIN connector • 25-pin parallel connector ❒ Mode: Centronics or bidirectional modes (ECP/EPP) ❒ Parallel port: 1 (378h, IRQ 7), 2 (278h, IRQ 5), or Off.

Physical Characteristics (standard configuration)

Characteristics:	Description:
Weight (excl. keyboard and display)	14.4 kilograms (31.68 pounds).
Dimensions	47.0 cm max. (D) by 21,0 cm (W) by 49.0 cm (H) (18.50 inches by 8.26 inches by 19.29 inches).
Footprint	0.09 m^2 (1.06 sq ft).
Storage temperature	-40 °C to 70°C (-40 °F to 158 °F).
Storage humidity	8% to 85% (relative).
Operating temperature	10 °C to 35 °C (50 °F to 95 °F).
Operating humidity	15% to 85% (relative).
Power supply	Input voltage: 100 - 127, 200 - 250 V (switch select) Input frequency: 50/60 Hz Maximum output power: 300 W continuous

System Specifications

Power Consumption Information

The power consumption and acoustics given in the below table is valid for a standard configuration as shipped (one processor, 256 MB of memory, 300 W power supply, one hard disk drive, video card, LAN card).

All infomation in this section is based on primary power consumptions.

Acoustic noise emission (as defined ISO 7779):	***Sound Power***	***Sound Pressure***
• Operating	LwA < = 43.9 dB	LpA < = 30.8 dB
• Operating with hard disk access	LwA < = 44.9 dB	LpA < = 31.8 dB
• Operating with floppy disk access	LwA < = 46.7 dB	LpA < = 33.6 dB
Power consumption - Windows NT:	***230 V / 50 Hz***	***115 V / 60 Hz***
• Operating with input/output (disk access)	85.5 W - 291.7 Btu/h[1]	84.5 W - 288.3 Btu/h
• Operating without input/output (idle)	75.8 W - 258.6 Btu/h	77.2 W - 263.4 Btu/h
• Off with LAN card	4.2 W - 14.3 Btu/h	4 W - 13.6 Btu/h

1. 1 W = 3.4121 Btu/h

Component:	
• Processor:	50 W - 170.6 Btu/h
• SCSI HDD with access:	23 W - 78.4 Btu/h
• SCSI HDD with no access:	16 W - 54.5 Btu/h
• PCI card:	10 W - 36 W - 34.1 Btu/h - 122.8 Btu/h

NOTE

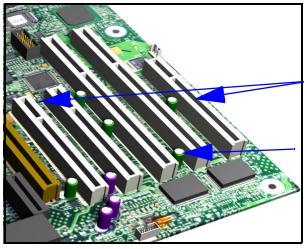
When the computer is turned off with the power button on the front panel, the power consumption falls below 5 Watts, but is not zero. The special on/off method used by these computers considerably extends the lifetime of the power supply. To reach zero power consumption in “off” mode, either unplug the power outlet or use a power block with a switch.

Maximum Loads Available for Accessory Slots

PCI Accessory Slots

The maximum supported power consumption per slot is 25W, either from the 5V or the 3.3V supply and must respect the electrical specifications of the PCI 2.2 specification. Total power consumption for the PCI slots must not exceed 75W.

If the total power consumption used in the PCI/AGP slots exceeds 75W, the BIOS will display a warning during the boot sequence.



There are five PCI slots on the system board:

- Three 32-bit 33 MHz PCI slots 1, 2 and 5, accepting 5 V PCI cards and Universal PCI cards (support for 3.3 V or 5 V).
- Two 64-bit 66 MHz PCI slots 3 and 4, supports 3.3 V PCI cards and Universal PCI cards (support for 3.3 V or 5 V).

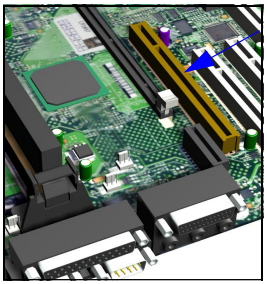
The following table shows the various PCI board installations for the different PCI slots:

	PCI Card									
	5 V		3.3 V				Universal (3.3 V or 5 V compatible)			
PCI Slot	32-bit/ 33 MHz	64-bit/ 33 MHz	32-bit/ 33 MHz or 66 MHz		64-bit/ 33 MHz or 66 MHz		32-bit/ 33 MHz or 66 MHz		64-bit/ 33 MHz or 66 MHz	
Slots 1, 2 & 5 5 V, 32-bit/33 MHz	*yes*	*yes*[1]	not supported		not supported		*yes*	*yes*[2]	*yes*[1]	*yes*[1,2]
Slots 3 and 4 3.3 V, 64-bit/66 MHz	not supported	not supported	33 MHz	66MHz	33 MHz	66 MHz	33 MHz	66 MHz	33 MHz	66 MHz
			yes[3,4]	*yes*[4]	*yes*[3]	*yes*	*yes*[3,4]	*yes*[4]	*yes*[3]	*yes*

1. A 64-bit card can be installed in a 32-bit slot. However, this card will only operate in 32-bit mode.
2. A 66 Mhz card can be installed in a 33 MHz slot. However, this card will only operate in 33 MHz mode.
3. A 33 MHz card can be installed in a 66 MHz slot, However, the card will operate in 33 MHz mode and will force all other PCI devices to operate at 33 MHz as well.
4. A 32-bit card can be installed in a 64-bit slot without preventing other 64-bit PCI devices to operate in 64-bit mode.

If a standard AGP (Accelerated Graphic Port) card is installed in the AGP PRO slot, the maximum power consumption for the PCI accessory and AGP slot must not exceed 75 W.

If an AGP PRO card (>25 W and ≤50 W) is installed, then the PCI slot 1 is made inaccessible as defined in the AGP PRO specification (PCI slot must be left unoccupied to provide its sources in terms of cooling and electrical power to the AGP PRO card.



AGP PRO Slot

The AGP PRO slot is a Universal-type connector which provides power through 3.3 V, 12 V or 5 V power rails with a maximum allocated power consumption of 50 W. If this power consumption is exceeded, MaxiLife reports an error and prevents the PC Workstation from powering on.

It provides an AGP 4x interface which is fully compliant with the AGP specification revision 2.0. The universal AGP PRO slot supports AGP 1x and 2x modes (uses 3.3 V or 1.5 V signals), and AGP 4x mode (1.5 V signalling).

	AGP Video Card[1]					
Supported operation in the Universal AGP PRO Slot	1.5 V		Universal		3.3 V	
	≤ 25 W	≤ 50 W	≤ 25 W	≤ 50 W	≤ 25 W	≤ 50 W
AGP1x[2]	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
AGP2x[2]	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
AGP4x[2]	*yes*	*yes*	*yes*	*yes*	no	no
PCI-type	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*

1. AGP PRO video cards are supported up to 50 W.
2. With or without sideband addressing.

IRQs, DMAs, and I/O Addresses Used by Your PC Workstation

The IRQ, DMA, and I/O address mappings shown here are for a basic configuration. The resources used by your PC Workstation may vary, depending on which accessory boards are bundled with the PC Workstation. Resources are allocated by the system BIOS or the Plug and Play operating system.

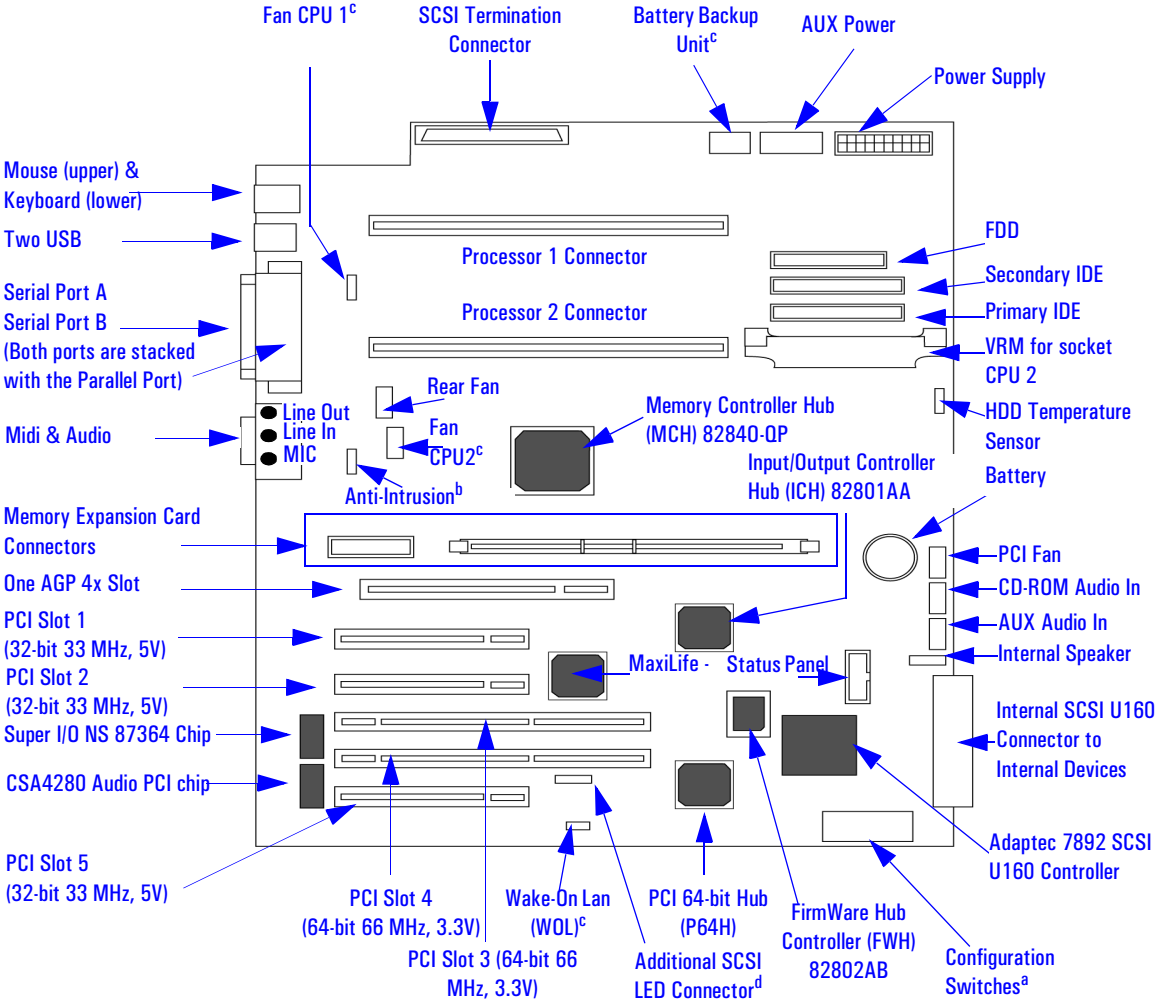
IRQs used by PC Workstation	IRQ0	System timer
	IRQ1	Keyboard controller
	IRQ2	Free
	IRQ3	COM2, COM4
	IRQ4	COM1, COM3
	IRQ5	Free
	IRQ6	Flexible disk drive controller
	IRQ7	LPT1
	IRQ8	Real-time clock
	IRQ9	Free
	IRQ10	Free
	IRQ11	Free
	IRQ12	Mouse
	IRQ13	Not connected
	IRQ14	Integrated IDE controller (primary)
	IRQ15	Integrated IDE controller (secondary)

DMAs used by PC Workstation	DMA 0	Capture
	DMA 1	Playback
	DMA 2	Flexible disk drive controller
	DMA 3	LPT ECP
	DMA 4	Cascade
	DMA 5	free
	DMA 6	free
	DMA 7	free

I/O Addresses used by PC Workstation	0000 - 000F	DMA controller 1
	0020 - 0021	Master interrupt controller
	002E - 002F	Configuration registers
	0040 - 0043	Timer 1
	0060, 0064	Keyboard controller
	0061	Port B (speaker, NMI status and control)
	0070	Bit 7: NMI mask register
	0070 - 0071	RTC and CMOS
	0080	Manufacturing port (POST card)
	0081 - 0083,	
	008F	DMA low page register
	0092	PS/2 reset and Fast A20
	00A0 - 00A1	Slave interrupt controller
	00C0 - 00DF	DMA controller 2
	00F0 - 00FF	Coprocessor error
	0130 - 013F	
	0170 - 0177	Free (IDE secondary channel)
	01F0 - 01F7	IDE primary channel
	0200	
	0220 - 0232	
	0278 - 027F	LPT 2
	02E8 - 02EF	Serial port 4 (COM4)
	02F8 - 02FF	Serial port 2 (COM2)
	0330 - 0331	
	0372 - 0377	Free (Secondary flexible disk drive)
	0378 - 037A	LPT1
	0388 - 038B	
	03B0 - 03DF	VGA
	03E8 - 03EF	COM3
	03F0 - 03F5	Flexible disk drive controller
	03F6	IDE primary channel
	03F7	Flexible disk drive controller
	03F8 - 03FF	COM1
	04D0 - 04D1	Interrupt edge/level control
	0678 - 067B	LPT2 ECP
	0778 - 077B	LPT1 ECP
	0CF8 - 0CFF	PCI configuration space
	8000	Power Management I/O space
	8400	ACPI Registers
	8800	MBus I/O space

System Board Connectors

The following diagram shows where the different chips and connectors are located on the E-ATX system board.



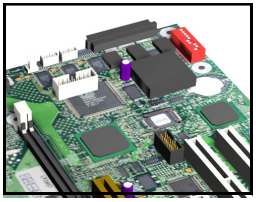
a. Refer to "System Board Switches" on page 12 or the Switch Block Label located on the chassis of the system box for the different system board switch settings.

b. Connector for the Anti-Intrusion switch.

c. Optional.

d. Connector for additional control of HDD LED on the status panel through the SCSI controller on a PCI add-on card.

System Board Switches

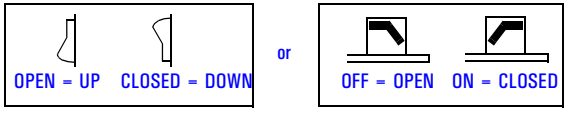


There are ten system board switches used for configuration, numbered from 1 to 10. Of these a certain number are reserved and should not be modified, otherwise it could lead to a system failure.

Switch	Default Position	To Configure:
1	**UP**	Enables normal mode. DOWN enables the BIOS recovery mode at next boot.
2	**UP**	Reserved. **Do Not change Default Setting**
3	**UP**	Enables User and System Administrator passwords. DOWN clears the passwords at next boot.
4	**UP**	Retains CMOS memory. DOWN clears CMOS memory at next boot.
5	**UP**	Reserved 5-6. **Do Not change Default Settings**
6	**DOWN**	
7	**DOWN**	Enables keyboard power-on. UP disables this option.
8	**DOWN**	Reserved 8-10. **Do Not change Default Settings**
9	**DOWN**	
10	**UP**	

Switch Boxes

There are two types of system board switch boxes that may be used on the *HP Kayak XU800 PC Workstation*.



Default Configuration

	10	9	8	7	6	5	4	3	2	1
OPEN = UP	X					X	X	X	X	X
CLOSED = DOWN		X	X	X	X					

Configuring Your Network Connection

You need to use the PC Workstation's *Setup* program to change the integrated Ethernet interface settings. To access the *Setup* program, Press F2 while the initial "Kayak" logo is displayed immediately after restarting the PC Workstation.

The following table summarizes which network options you can set using the *Setup* program. To

Network Setup Items[1]	Where to find in ***Setup***
Enable your PC Workstation to be started (booted and logged on) from the network.	In the Security menu, go to the Boot Devices Security submenu (described below).
Enable remote power-on of your PC Workstation.	In the Power menu, enable the Integrated Network item.
From "Suspend Wakeup" mode, enable your PC Workstation to return to full power when a command is received by the integrated network interface.	In the Power menu, enable the Network Interface item.
Determine boot device priority.	In the Boot menu, select the Boot Device Priority list item.

1. For full information on setting up your network, refer to the online *Network Administrator's Guide* preloaded onto your PC Workstation.

Controlling the Network Security Features

The Security Features allow you to enable starting from the network if you want the PC Workstation to start from a LAN server.

To enable starting from the network:

1 Press F2 while the initial "Kayak" logo is displayed immediately after restarting the PC Workstation to access the *Setup* program. Use the ◁ or ▷ key to select the **Boot** menu.

2 Check that **Option ROM** is enabled on the PCI 5 (Advance PCI5).

3 Highlight the line **1st Device** and press F7 or F8 to change the option to **Lan**.

To disable boot options:

1 Press F2 while the initial "Kayak" logo is displayed immediately after restarting the PC Workstation to access the *Setup* program. Use the ◁ or ▷ key to select the **Security** menu.

2 Press ▽ to go to the **Start From Floppy line**. Press F7 or F8 to change the option to **Disabled**.

3 Press ▽ to go to the **Start From CD-ROM** line. Press F7 or F8 to change the option to **Disabled**.

4 Press ▽ to go to the **Start From HDD** line. Press F7 or F8 to change the option to Disabled.

5 Save your changes and exit.

To obtain further information and assistance, refer to the online help in the *Setup* program.